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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,838	05/30/2001	W. Thomas Novak	371922004100	7251

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EXAMINER

GURZO, PAUL M

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,838

Applicant(s)

NOVAK ET AL.

Examiner

Paul Gurzo

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 34b and 101. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 10-12, 15, 16, 19-21, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakino et al. (5,040,431).

Regarding claims 1 and 33, Sakino et al. teach a positioning stage system and a method for positioning comprising a support platform (5), x-direction and y-direction linear motors (col. 1, lines 23-26), an x-member coupled to the x-direction linear motor and to the support platform to move the platform (5) in an x-direction along the y-member (4), wherein the y-member is coupled to the y-direction linear motor to support the platform to move in a y-direction along the x-member, and a slide attached to the support platform and slidably engaged with the x-member and the y-member wherein all three are configured to support the weight of the platform (col. 1, line 17 - col. 2, line 37, col. 3 line 60 - col. 4, line 25, and Fig. 1).

Art Unit: 2881

Regarding claims 8 and 10, they teach the use of gas or air bearing mounting plates (40a and 40b) that are known in the art as a counter mass device that is able to reduce reaction forces produced by the linear motors (col. 4, lines 9-11).

Regarding claims 11 and 12, they teach the use of a guide member (2a and 2b) extending in the y-direction (col. 1, lines 59-66) through the opening in the y-member.

Regarding claims 15 and 16, they depict in Fig. 1 the claimed slidable engagement with both the x- and y-member.

Regarding claim 19, they teach the use of an interferometer (col. 7, line 62 - col. 8, line 5).

Regarding claims 20 and 21, Fig. 1 depicts the claimed disposing of the support platform and slide.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7,9,13,14,17,18,22-32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakino et al. (5,040,431), and further in view of Otaka (5,149,967).

Regarding claim 22, the Sakino et al. teach a positioning stage for use in semiconductor device manufacturing (col. 1, lines 6-12). They teach a positioning stage system comprising a support platform (5), x-direction and y-direction linear motors (col. 1, lines 23-26), an x-member

Art Unit: 2881

coupled to the x-direction linear motor and to the support platform to move the platform (5) in an x-direction along the y-member (4), wherein the y-member is coupled to the y-direction linear motor to support the platform to move in a y-direction along the x-member, and a slide attached to the support platform and slidably engaged with the x-member and the y-member wherein all three are configured to support the weight of the platform (col. 1, line 17 - col. 2, line 37, col. 3 line 60 - col. 4, line 25, and Fig. 1).

They do not explicitly teach the claimed lithography system. However, Otaka teaches a positioning apparatus for a lithography system that includes an electron beam source (6) for generating a beam of electrons, electron beam lenses (4) operable to focus the beam, and deflectors (3) to direct the beam to specific positions on the article (col. 2, lines 60 - 68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use this positioning for electron beam lithography because both prior arts teach the need for positioning in the semiconductor manufacturing art.

Regarding claims 2-7, 23, 24, and 34, Sakino et al. teach that both the x- and y-stages are controlled by means of magnet units (6) (col. 5, lines 41-44 and Fig. 4). They also teach the use of a coil (126) with a magnet (128) (col. 8, lines 56-60 and Fig. 11). It is obvious that the magnet and coils are connected to the frame in a manner that will facilitate the claimed slidable engagement. Any modification is considered an obvious extension of the prior art and is not given patentable weight.

Regarding claims 9 and 26, adding a grounding block is an obvious extension of the prior art because these blocks help reduce disturbance of the structure and the prior art teaches on the

Art Unit: 2881

claimed need for stability for accurate positioning (Sakino et al., col. 1, lines 6-12 and Otaka, col. 2, lines 25-29).

Regarding claims 13,14, and 30, Sakino et al. depicts the claimed two end portions with guide members in Fig. 1, and Okina depicts the claimed parallel shaft (9d) in Fig. 3a, and any modification is considered an obvious extension of the prior art.

Regarding claims 17 and 18, Otaka teach the use of non-magnetic materials such as ceramics (col. 3, lines 61-63).

Regarding claims 25 and 27, Sakino et al. teach the use of gas or air bearing mounting plates (40a and 40b) that are known in the art as a counter mass device that is able to reduce reaction forces produced by the linear motors (col. 4, lines 9-11).

Regarding claim 28, Sakino et al. depict the claimed disposing of the support platform and slide in Fig. 1.

Regarding claim 29, Sakino et al. teach the use of a guide member (2a and 2b) extending in the y-direction (col. 1, lines 59-66) through the opening in the y-member.

Regarding claim 31, Sakino et al. depict the claimed slidable engagement with both the x- and y-member in Fig. 1.

Regarding claim 32, Sakino et al. teach the use of an interferometer (col. 7, line 62 - col. 8, line 5).

Regarding claims 35 and 36, it is obvious in light of Otaka that x- and y-direction linear motors will operate in the proper manner so that accurate article exposure occurs.

Conclusion

Art Unit: 2881

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following teach the use of an x- and y-stage apparatus for positioning.

Moriyama et al. (4,409,860)

Negishi (4,916,340)

Yamane et al. (5,858,587)

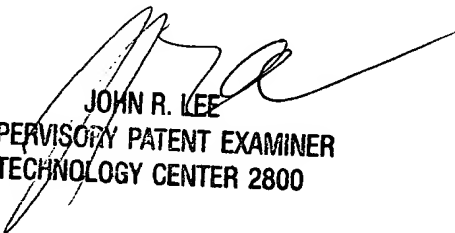
Lee (6,130,490)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (703) 306-0532. The examiner can normally be reached on M-Thurs. 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on (703) 308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PMG
February 11, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800